THE VETERINARY RECORD

A Weekly Journal for the Profession.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

No 1381 · DECEMBER 26, 1914. · VOL. XXVII.

JOHNE'S DISEASE.

Many of us can remember when most laymen, and even some professional men, regarded tuberculosis as practically, if not absolutely incurable. The mistake arose, of course, from the fact that diagnosis was then only possible when the disease was far advanced. Thanks mainly to improved diagnostic methods, we now know that animals and human beings alike have so much natural resistance against tuberculosis that a great many affected ones never reach a stage at which the disease becomes clinically evident,

There is now good reason to believe that Johne's disease—also once thought incurable—closely resembles tuberculosis in this respect. This comes out clearly in Oluf Bang's report on the disease to the International Veterinary Congress, a summary of which we published last week. Quite the most important feature of this paper by an acknowledged authority of exceptional experience was the emphatic statement that many affected animals "never come to show symptoms of the disease." Something like this was known or suspected before Bang's pronouncement—it was at least known that cattle might be affected and infective without showing clinical symptoms, and there was evidence to suggest a long period of latency.

It was not realised that the disease usually runs as insidious a course as tuberculosis; but there is nothing improbable in the statement, and Oluf Bang's experience carries great weight. If we accept his view as correct, we shall find that it has considerable practical significance.

In the first place, as we have more affected animals, all liable to become acute cases, than we realised, the eradication of Johne's disease becomes more urgent. Secondly, the long period of latency increases the possibility of discovering, isolating, and fattening affected cattle, and so clearing herds without serious loss. This has been attempted in Denmark, and has so far failed for want of an absolutely reliable diagnostic method. Given a good diagnostic method, Johne's disease could be stamped out on the same lines as tuberculosis can —only much more easily, because it is far less common.

According to Bang, the one thing we most need for Johne's disease in an absolutely satisfactory diagnostic method. At present we have three methods, all of undoubted value, but not one free from drawbacks. But there is no disease regarding which we have learnt so much in the last few years as this one; and it can scarcely be long before the perfection of a diagnostic method places its eradication within our reach.

ACORNS.

During the last few months country practitioners have had a considerable number of animals to treat for disease caused by acorns. As the subject does not receive much attention in text books it may be of interest to record a few observations.

Re History. Commonly the veterinary surgeon is told the truth—that the cattle have had access to acorns; yet very often the answers to his questions are misleading. The fact that symptoms of illness often develop some days after taking the cattle away from the neighbourhood of oak trees, may cause the owner to ascribe the trouble to some other source. Or possibly the acorns in the fields have been picked up by hand and the pastures are presumably safe for cattle. Such a history requires investigation; pickers do not leave the ditches thoroughly clear of the fruit of the oak, and cattle with a craving for acorns will spend hours among the dry leaves of a ditch looking for, and usually finding this dangerous food. When groups of cattle are seen congregated under oak trees it indicates success—either past or present—in finding acorns.

Re Subjects. These observations refer to cattle only. Young subjects suffer most, and tolerance appears to be directly in ratio to age.

Re Diagnosis and Symptoms. Bearing in mind any reliable history, also the age of the animal and season of the year, some of the following symptoms complete diagnosis. Total or partial anorexia, staring coat, dry muzzle with sometimes a crusty dry exudate around the nostrils. Grunting and grinding of teeth is often observable. At the outset the fæces are scanty, abnormally firm and always coated with mucus; possibly some acorn husks may be noticed but often this is not the case. Later, unless recovery is rapid, diarrhœa supervenes and the appearance of dysentry is a very unfavourable symptom.

The sinking of the eyes into the orbits is a noticeable condition. In slight cases this may not be well marked, but in a severe case, and especially shortly before death, the retraction of the eyeballs is more especially evident in acorn poisoning than in other maladies.

Sometimes there is a stamping of the hind feet and efforts to kick the belly with them, indicative of acute abdominal pain. Always there appears some alteration in urination. Usually the secretion of urine is more profuse and less highly coloured than normal; occasionally hæmaturia is noticeable; sometimes, but not commonly (except when *in extremis*) a paralysis or semi-paralysis of the hind quarters is observed.

The actual symptoms of acorn poisoning may be accompanied by others, *e.g.*, a sick animal may the more readily acquire pneumonia, and if tuberculosis or Johne's disease be latent in the subject, their particular symptoms may add to and sometimes mask the acorn trouble.

Re Prevention: Yards, buildings, or fields without oak trees are *the sure means* of prevention. Apart from this, the danger to cattle is lessened by providing abundance of food.

Hand picking of the fields and subsequently the feeding of old sheep of a hardy breed (*e.g.*, Romney Marsh ewes), render the fields safe for cattle. Windy weather helps in making the acorns fall more readily and they are thus removed quicker.

Re Treatment:—Avoid purgatives, stimulants and tonics. Possibly a medium dose of linseed oil in the first stages is not harmful, but magnesium sulphate is (in my experience) especially a cause of making matters worse; the same can be said of the employment of the usual stimulants and tonics.

A loose box or warm yard is indicated, or if not available and the animal is tied in a stall, a five minutes daily walk should be given.

The only drug which I have found helpful is belladonna:—a two-year-old bullock requiring one drachm of extract belladonna liq. B.P. (Parke, Davis) night and morning, combined with ½ oz. doses of common salt—other ages in proportion.

Re Prognosis and Duration. Except in cases of adult cattle with slight symptoms, the illness lasts from a week to a fortnight, and often on about the tenth day a change in one or other direction is evident. In the most severe cases death may be much earlier. Prognosis depends largely on the age of the subject, and although the death rate in the case of calves is high, the percentage of recoveries of animals more mature is sufficient to warrant continued treatment. Adult cattle (unless exceedingly large quantities of acorns have been eaten) commonly respond to treatment.

Re Post-mortem. Often very few acorns remain in the ingesta. Inflammation of the fourth stomach is usual, and blood-stained mucus can often be scraped from the lining. The kidneys also show inflammatory phenomena.

J. H. Ripley, M.R.C.V.S., Hurst Green, Sussex.

ABSTRACTS FROM FOREIGN JOURNALS

The Investigation of the Functions of the Kidneys in Horses.

Lorscheid has published *(Deutsche Tier. Woch.)* an article upon this subject. The best method of estimating the salt-secretion of the kidneys is by introducing a harmless salt into the organism and then observing its excretion. Indigo carmine is the salt most suited for this purpose. It is excreted exclusively through the kidneys—through the glomerular apparatus. Sweat, saliva, gall and fæces remain uncoloured by it. If about 0·8 gramme of indigo carmine in watery solution is injected subcutaneously into a healthy horse, the colouring material appears in the urine after from 20 to 25 minutes and persists for about 14 hours. At the highest point of the excretory activity (which is reached after three to seven hours) the colouration is dark green; and for the remainder of the time it is light green.

Methylene blue is less suited for this purpose, as it undergoes a partial transformation in the body. It can be given by the mouth or subcutaneously. Healthy horses, on the subcutaneous injection of 0·5 gramme of methylene blue in watery solution, excrete blue colouring material one hour after the injection, and continue to do so from two to six days. The colour is most marked on the first day; then it decreases somewhat, then remains stationary for two or three days, and finally gradually disappears on the last day. If the period of colouration only persists for two or three days, then the colour is distinctly more marked on the first day than it is in cases in which the excretion extends over from four to six days.

Mehring has recently introduced a further method for the estimation of renal activity. He found that, after the administration of the glucoside "phloridzin," a marked glycosuria appeared. The production of sugar through phloridzin is an active process exclusively belonging to the renal parenchyma, probably to the tubular epithelium. Phloridzin is insoluble in water, and is injected subcutaneously in a 10% alcoholic solution. If healthy horses receive 0·1 gramme of phloridzin, grape sugar appears in the urine after from 20 to 30 minutes and persists for two or three hours. The proportion of sugar varies from 1% to 3%.

The estimation of the renal excretion is of importance in the differential diagnosis between chronic parenchymatous nephritis and chronic interstitial nephritis. In interstitial nephritis the excretion of colouring matter or grape sugar appears later and is in smaller quantity than normal, while the period of excretion is longer than in healthy kidneys. In chronic parenchymatous nephritis, also, the excretion appears later and is in smaller quantity than normal; but the period of excretion is distinctly shorter.

If albuminuria co-exists with renal insufficiency, the case is one of disease of the renal parenchyma. But if, despite the albuminuria, the renal activity is maintained, it is a case of so-called "harmless albuminuria."

Lastly, the author reports the results of his application of these methods in equine practice. He was able to demonstrate disturbances of the renal function in horses affected with the pectoral form of influenza (contagious equine pneumonia). In these horses the indigo carmine appeared markedly later than in healthy ones; the difference of time was usually from 15 to 60 minutes, but in one case it reached an hour and a half. The excretion of colouring matter per day was smaller, and the period of excretion longer, than normal. Grape sugar always appeared later than in experiments upon healthy horses—the difference varied from half-an-hour to five hours. In one case grape sugar

was not excreted at all. The excretion of methylene blue appeared irregularly.

Disturbance of the renal function could not be demonstrated in cases of strangles, pharyngitis, and diabetes insipidus. In one case of catarrhal pneumonia disturbance of the renal function was not present at first, but it appeared later as cardiac weakness, and pulmonary gangrene set in.—(*Munch Tier. Woch*).

W. R. C.

CENTRAL VETERINARY SOCIETY.

[NATIONAL V.M.A. SOUTHERN BRANCH.]

A General Meeting of the Society was held at 10 Red Lion Square, London, W.C., on Thursday, December 3rd, Mr. F. W. WILLETT, President, in the Chair.

The following Fellows signed the attendance book:—Messrs. H. J. Parkin, Col. C. Rutherford, J. Willett, H. D. Jones, R. J. Foreman, M. Cahill, D. Stewart, Profs. J. Macqueen, G. H. Wooldridge, E. B. Reynolds, Messrs. J. F. Macdonald, P. S. Howard, N. Almond, C. H. Sheather, W. A. Thompson, J. Rowe, J. W. McIntosh, C. Cunningham, A. Neish, R. Eagleshan, H. K. Roberts, E. L. Stroud, W. Perryman, A. L. Wilson, W. Willis, W. R. Davis, W. R. Clarke and Hugh A. MacCormack, Hon. Sec.

On the motion of Mr. Rowe, seconded by Prof. Reynolds, the Minutes of the last meeting were taken as read and confirmed.

The HON. SECRETARY said he had received a letter from Capt George Dunlop Martin, A.V.C., T., apologising for not being able to be present as he was in training at Forest Row, Sussex.

SPECIMENS.

Prof. WOOLDRIDGE said he had been asked at the last meeting to examine some tumours which had been brought forward as morbid specimens, and he now desired to state the nature of them. The one he had presented himself was a large kidney of a dog, and that had been proved to be adeno-carcinoma. In the case of the two specimens presented by Mr. Livesey, one was a spleen which had a large lump at the one end, which on microscopic examination proved to be a hæmatoma. The other was a small, dark looking piece of tumour concerning which Mr. Livesey gave a very interesting history which seemed to indicate that melanotic sarcomata had been transmitted from parent to progeny. Unfortunately for that theory, however, the tumour (which proved to be a spindle-celled sarcoma) was not a melanotic one at all, and consequently could not be regarded as being an indication of transmission from parent to progeny.

He (Prof. Wooldridge) had some recollection of the previous tumour to which Mr. Livesey had referred as occurring in one of the progeny and which was melanotic. But the fact that there were melanotic tumours in the progeny, even if they had occurred in the parent did not indicate necessarily that they had been transmitted from parent to progeny. It might only be a coincidence.

Prof. WOOLDRIDGE said he was down to report on the R.S.I Congress and the Tenth International Veterinary Congress. With regard to the latter he was afraid that unfortunately he had nothing to report. The members are all fully conversant with what had occurred and why the Congress had had to be abandoned.

CONGRESS OF THE ROYAL SANITARY INSTITUTE AT BLACKPOOL, JULY, 1914.

Gentlemen,—At your request, I proceeded to Blackpool on July 7th, to attend the Conference of Sanitary Inspectors on July 8th, in connection with the above Congress, and I am glad to say that it was attended by larger numbers than I have seen previously at that section. Although this particular meeting was called a Conference of Veterinary Inspectors, it was open to all members and delegates to the Congress, and the numbers were therefore swelled by the presence of Medical Officers of Health, Sanitary Inspectors (many of whom, of course, are lay meat inspectors), and members of municipal bodies.

The section was most ably presided over by Mr. J. W. Brittlebank, M.R.C.V.S., of Manchester, who commenced the proceedings by delivering a most excellent address, the main theme of which was the great usefulness of the veterinary profession in public health matters if their services were only more freely called for.

The papers brought forward for discussion were three in number.

The first, "Some Metazoon Parasites met with in food inspection, and their relation to Public Health," was read by Mr. A. W. N. Pillers, F.R.C.V.S., and illustrated by a number of actual specimens and excellent lantern slides. Amongst the parasites mentioned as affecting animal tissues, was one not often heard of in this country, viz., the *Cysticerus ovis*, found in the musculature of sheep, particularly the heart, diaphragm, muscles of mastication and the tongue.

The parasite somewhat resembles the *Cysticerus cellulosæ*, the cause of measly pork. The essayist stated that in 1912, in the U.S.A., as many as 20,000 carcases were found to be affected. The parasite is the intermediate stage of taenia ovis of the dog, and is apparently not dangerous to the human subject.

A number of higher forms of parasites were noted also, including the mites affecting the various kinds of food stuffs—as flour, infant foods, bran, cheese, figs and dates—those affecting the latter two, the *glycephagus domesticus*, sometimes causing great irritation of the skin of people handling them, a condition sometimes termed "grocers' itch."

It is not possible in a brief report like this to detail the various parasites named in the paper and known to be dangerous to man, but, in summing up, Mr. Pillers well established his three main conclusions, viz., (1) that food inspection is one of the most important factors in preserving public health; (2) that parasitology is an invaluable subject to the food and meat inspector, and (3) that it is essential for him to be properly equipped with apparatus and laboratory accommodation if he is to carry on his work satisfactorily. These conclusions were heartily endorsed by the Conference.

The second paper was on "The Working of the Tuberculosis Regulations of the Board of Agriculture and the Local Government Board," by Mr. J. D. Whitehead, F.R.C.V.S. The writer of this paper summarised the work being done under (1) The Dairies, Cowsheds, and Milk Shops Order 1896, and its amending order of 1899; (2) The Model Milk Clauses of the L.G.B., and (3) The Tuberculosis Order of 1913.

The main features referred to the imperfections of and the difficulties met with in the administration of the last named, but the writer was placed in a somewhat awkward position by the fact that between the time of writing his paper and the discussion on it, the Tuberculosis Order of 1914 was promulgated, and many of the severely criticized features were remedied. An animated discussion occurred, in the course of which some sanitary inspectors voiced the opinion that veterinary surgeons were attempting to oust them from their proper spheres. On this matter, however, your representative pointed out that there is ample work for both in the proper inspection of dairies, and that very few veterinary surgeons were anxions to inspect drains and cesspools, and waterclosets, but they would strenuously oppose the principle of sanitary inspectors without any training in

the diagnosis of diseases of animals, being appointed to examine cattle as to health. A municipal representative from the County of Lanark strongly supported that view, and stated that in their district the inspection of dairy cattle was entirely in the hands of the veterinary inspector, Mr. Hugh Begg, with whose work in that sphere they were, if possible, more than satisfied.

The third paper consisted of "Notes on the Eradication of Tuberculosis from Dairy Herds," by Mr. G. P. Male, M.R.C.V.S. The writer of this paper treated his subject in a very able manner, and he showed pretty clearly that quite apart from the question of the communicability or otherwise of tuberculosis from cows to human beings, a farmer is well repaid for his expenditure in eradicating the disease by the general improvement of his stock. He said, "It goes against the grain to slaughter a number of animals in a short space of time, but when one considers the enormous losses in a badly affected herd from wasters, sick cows, sudden and sometimes unexplained deaths—often due to tuberculosis, it is more economical to do so. These losses being spread over a period are not noticed to such a degree, but if accounts were strictly kept it would surprise us all. The veterinary surgeon is very seldom needed in a tubercle-free herd, the cows require less food to keep up their condition, there are rarely any udder troubles, and the cows command a higher figure when sold." I think you will agree that that is a very strong case in itself in favour of the eradication of bovine tuberculosis.

The reliability of the tuberculin test was necessarily mentioned, since without it there is no possibility of separating the healthy from the diseased. In this connection Mr. Male's view is that *in expert hands* it is a most reliable and sensitive test, but we must not shut our eyes to its idiocyncracies. "I have statistics extending over a period of years relating to a number of herds I have tested, and post-mortem records of about 300 cows slaughtered. Space will not permit me to quote them in full, but I may claim that I have never yet seen a case where an animal has given a typical reaction to tuberculin, and when the carcase has been *properly examined*, that has not been found to be tuberculous." The general trend of the ensuing discussion was to support the views of the essayist.

The present Congress was a considerable improvement on some of the previous congresses I have attended, and I think we should record our appreciation of the action of the R.S.I. in changing the day of the Veterinary Section from the last day of the Congress and placing it in the middle of the week, so that any resolutions passed may be in time to be brought forward at the final general meeting of the Congress. Moreover, the publication of the papers in advance leads to much more animated and profitable discussions. I feel more than ever convinced that our societies should continue to be represented at these congresses, and so assist in securing to the veterinary profession its proper share of Public Health work.

On the motion of Prof. Almond seconded by Mr. Sheather, a hearty vote of thanks was accorded to Prof. Wooldridge for his Reports.

Rupture of Serratus Magnus in a Dog.

Prof. Reynolds exhibited a dog that had received an unusual injury to its left fore limb. The animal had been brought to the clinique with the history that it had been run over by a taxi-cab. He had brought the case forward, not so much from the point of the importance of the lesion, as from the interesting nature of it. He had been influenced further to do so by the expression of the opinion at the last meeting, that in some cases where the history was that the animal had been run over, it was probable that the injury was caused by some part of the vehicle striking the animal from behind and knocking it out of the way. In the case he was showing the condition present was due to complete rupture of the serratus magnus, the muscle principally responsible for the suspension of the fore limb on to the body. This injury allowed the superior end of the scapula to stick up some two or three inches above the level of the dorsal spines when any weight was put on the limb. There was no wound on the skin and it seemed rather extraordinary that the force that must have been necessary to cause the injury had not done more harm. He supposed that if one attempted to rupture the serratus magnus the force one would have to exert to do it would tear off the whole limb. He thought that what really happened was that the dog was hit a slanting blow from behind on the posterior edge of the scapula; the scapula was knocked forward and the muscle torn.

At the time the animal was brought in there was a large hæmatoma about the size of a cocoanut situated behind the superior part of the scapula. This was tapped with every aseptic precaution, the fluid withdrawn, and the cavity syringed out with a weak solution of iodine. He then put on a many tailed bandage in the form of a jacket, and so arranged that the shoulder blade was held quite firmly to the animal's side. The bandage was removed on the third day and as no more fluid had collected it was replaced and, with the exception of one or two examinations, worn continuously for six weeks. No reunion of the separated tissues appeared to have taken place, and the limb was

supported now only by the skin and pectoral muscles. He expressed the opinion that had the hæmatoma been incised and treated as an open wound some slight infection would have occurred, healing would have been by granulation and slower, probably some adhesion would have occurred, and a better recovery made.

Mr. ALMOND said he should have been very sorry himself to have made an incision and allowed a certain amount of infection to enter. Septic infection would have been much more likely to have taken place if that had been done, and the dog might have died. The dog was not a hunting dog or likely to be used for any severe purposes, and as it had good use of the limb he thought it would be wrong to attempt any form of further treatment, as that would be much more likely to result in failure than in success.

Mr. ROWE also thought that nature should be allowed to take its own course, and that no further treatment should be attempted.

Mr. STROUD thought the case was so interesting that a photograph should be taken. No doubt Prof. Wooldridge or Prof. Reynolds would be writing some literature on canine work in the future, and he certainly thought they should incorporate the case into it. There was no doubt to his mind that the dog was hit on the side from behind and had torn the muscle or the attachment of the muscle on the posterior side. As far as he could feel, the front of the muscle was adherent or was in position, and it was only the posterior portion that was injured. He held that no possible treatment would put the case right. He had treated a great number of cases of dogs which had been run over by motors, and in very few instances had the skin been injured. There had been extensive internal injury and broken bones but no injury to the skin.

Prof. WOOLDRIDGE said he had seen other cases of dogs injured by motors with complete rupture of the serratus magnus, but in no case had he seen it where there were not other extensive injuries; and in each case it had proved fatal. In those cases where the serratus magnus had been completely ruptured there was no wound on the skin behind the scapula to indicate the actual point of concussion.

SOME ASPECTS OF THE QUESTION OF CRUELTY TO ANIMALS.—Adjourned Discussion.

Mr. MCINTOSH said he was quite sure all the Fellows associated themselves most heartily with Prof. Wooldridge in doing what was possible to promote the comfort and the happiness of the dumb creation and, when the opportunity presented itself, of alleviating suffering. It required a special turn of mind and a special training to connect cause and effect, and one ought to be very careful in estimating the amount of pain associated with any given case, particularly in certain forms of lameness. He thought it was there that veterinary surgeons frequently found themselves at variance—more especially in the police courts. There should be no differences of opinion on questions of fact, but there was room for differences of opinion as to the cause, and perhaps as to the amount of pain associated with the certain conditions presented. He thought it must be confessed, however, that talent for abstract reasoning in the case of some veterinary surgeons passed all understanding. Whether this was due to intellectual vanity or ignorance, he did not know, but certainly it existed, to the detriment of the profession.

(Mr. McIntosh then proceeded to quote two cases of direct conflict of evidence on the part of veterinary surgeons in the police court).

With regard to the first of the questions asked by Prof. Wooldridge—"Is it the opinion of this meeting that there may be lameness without pain." In the first place he would ask, "What is lameness?" Lameness as described by Prof. Wooldridge is "The manifestation in the act of progression by one or more limbs of pain, weakness or inability." If that definition were accepted then he (Mr. McIntosh) was of opinion there could be lameness without pain. The definition which he was taught in his college days was, "Lameness is the language of pain manifested in one or more limbs during progression." If this definition be accepted it had to be allowed that there could not be lameness without pain. He thought, perhaps, the first definition was the better one, as there is no doubt that many forms of lameness, or apparent lameness, are not associated with pain. In certain forms of bone disease such as chronic ringbones and sidebones and other similar abnormalities, contracted feet, contracted tendons, weakening of the extensors, you have an altered gait—an impediment in action, but no pain associated with the condition.

He thought there was no doubt, from a strictly humanitarian point of view, that docking did cause pain and was not justifiable. It had, however, been carried on as a matter of routine and tradition for a long number of years, as congenial to the whims of fashion, and he presumed it was deemed essential to the improvement of nature. Personally, he was not opposed to the operation, as when properly done he thought there was little pain associated with docking, if done when the animal was young (and he confessed he liked to see a horse docked). It was justified in a very large number of cases where animals were inclined to be vicious, and in switching their tails about got them round the reins and thus caused trouble. Again, in certain forms of haulage, goods were not always protected, and a long tail in dirty weather, to say the least of it, was very insanitary.

On the question of overstocking in milch cows, it was a common practice amongst dealers to allow the milk to accumulate in the vessel for a considerable period before exposing the animal for sale, with a view to giving it a better show; but unless there was constitutional disturbance associated with the condition he did not think there could be any pain. He had frequently to examine animals alleged to be suffering from this practice, but if he found the patient ruminating, temperature and pulse normal, he did not regard the condition as amounting to cruelty. As regards the question of time, this would depend largely on the cow. There were some milch cows which would not become overstocked in twenty-four hours, whereas there were others which, if they retained their milk for a period of twelve hours, would suffer a considerable amount of discomfort, if not actual pain. He considered the practice ought not to be allowed, and he could not quite understand why dealers should carry it on, because men who knew their business were not attracted by the show of the vessel at the time; they were familiar with the practice, and the condition of overstocking did not influence their judgement.

Prof. REYNOLDS failed to understand clearly the object of Prof. Wooldridge in asking the members to give answers to certain questions. Was he thinking that by getting definite answers to these questions he would be aiding in the prevention of cruelty to animals; or was he thinking that by fixing these points the great differences of opinion that prevailed between veterinary surgeons in law courts would be lessened? He thought that although all veterinary surgeons deplored the existence of cruelty and, when they had the chance, did what they could to alleviate it, they all deeply deplored the methods adopted in the giving of evidence for the prevention of it.

The argument the author used in his paper in connection with this point was one he (Prof. Reynolds) had used himself many times, namely: that it was the exaggeration on both sides that was responsible for

this trouble. Although the evidence given on either side might have its origin from a common basis, it was exaggerated, and sometimes exaggerated to such an extent that one could hardly conceive that the two sides were speaking about the same condition.

He happened to read the other day the report of a case of cruelty for docking which struck him as being a good example of exaggeration. The veterinary surgeon giving evidence for the prosecution said that the tail had been taken off to fit the horse to the cart, instead of going to the trouble of fitting the cart to the horse. He then went on to say that the operation of docking involved the cutting of four nerves, six arteries, six veins, seven muscles, and the skin; therefore the searing of the flesh must cause great pain. In all probability if that veterinary surgeon had been appearing for the other side it would never have occurred to him to use such expressions.

Referring to the author's statement: "Pain varies in different species, but nevertheless in the more highly bred animals in the various species sensation is apparently more acute than in the coarser bred animals." He said as far as his experience went the better bred the animal the better it withstood pain. He did not know that animals of the same species differed very much in the sensation of pain. His idea was that the highly bred animal was often a "better plucked 'un" and better withstood pain.

He had heard the same definition of lameness as that given by Prof. Wooldridge, but there came into his memory, although he had forgotten the source, another word added on to the end of it—the word "impediment." He thought that this word must be added since it was possible for a condition to exist that could not be described under the head of either "weakness" or "inability." For instance, stringhalt: this was hardly a weakness or an inability, but it was certainly an impediment. Further, one could not say that stringhalt amounted to pain, although it came under the definition of lameness. He thought that the wording of the definition showed that its author held the opinion that lameness could exist without pain. While admitting that he held this opinion himself, he could not see any great advantage in fixing the point; since assuming one had such a case it surely would depend upon the amount and duration of work that such an animal was subjected to as to whether it did or did not suffer pain; and thus there would be a chance for differences of opinion.

With regard to docking in the dog he associated himself with the remarks of Mr. Almond and Mr. Willett, that although it might not be a necessity one could hardly think that there was very much pain in connection with amputation of the tail of a seven or eight days old dog. In the case of the horse, there again it was a matter of fashion rather than of necessity, although from experience he knew there were cases where an animal had acquired the habit of catching the reins with its tail; an accident often resulting. In such a case one was quite justified in docking.

In connection with overstocking, it was an impossibility to fix a time at which pain occurred from allowing a cow to go unmilked. Some cows could go longer than others; a hard and fast rule could not be laid down. He felt bound to remark that he thought Prof. Wooldridge was somewhat unfortunate in picking the case he had done in order to illustrate his remarks, for he (Prof. Reynolds) had some knowledge of the case. He had known for some years the inspector who appeared in the case, and considered him one of a bad type of cruelty inspector that was known to most of them. He gave his evidence in connection with six cows which he said were recently calved: as a matter of fact two of them had not calved. It was also inferred in court that collodion had been put on the ends of the teats. During the appeal one gentleman made a very sound remark in reference to this point; he said that he knew the inspector well enough to know that had collodion been used it would have been brought into Court. The substance referred to was probably wax on the ends of the teats of an uncalved cow. Prof. Wooldridge seemed to take exception to the Judge giving his verdict on the evidence of an old farmer who had advised his son to buy the cows, but he (Prof. Reynolds) considered the Judge had shown his wisdom in appreciating that evidence. One great factor which had decided the case was that the cows were chewing their cud. He thought great reliance could be placed upon this fact: if a cow was chewing its cud it could not be suffering pain.

Mr. SHEATHER said the definition of lameness had become rather extended during the course of the discussion. Why not include in it anything that was a deviation from the normal method of progression? Why not describe it as being evidence of something abnormal in the animal's method of progression? Personally he preferred to limit the term "lameness" to those cases which evidenced pain, and to describe the other cases as cases of defective action. He thought that simplified the matter, and also had a better effect on the lay mind.

Prof. MACQUEEN said the author's contribution would have been more acceptable to him, and a little more interesting, if he had taken the trouble to favour the members with his conception of pain, because in the first part of the paper the author said that a certain amount of pain was inevitable during every animal's life, as in a man. That was a generalisation to which he (Prof. Macqueen) could not subscribe without a good deal of explanation. If one went to the dictionary to find out what was meant by pain it would be found it was there stated that originally pain meant that which purifies, and as commonly employed to-day it meant bodily suffering. To him, as a veterinary surgeon, pain meant an effect of irritation acting on a sensitive part. A little further on in the paper the author warned the the members to avoid exaggeration in evidence—a very useful warning, no doubt, but in practice and in experience one found that the chief complaint regarding exaggeration in evidence arose from the losing side. It was always the losing side that complained of exaggeration, and that quite irrespective of whether the losing side was represented by a large number of veterinary surgeons or not. A little further on Prof. Wooldridge emphasised that veterinary surgeons should carefully distinguish between facts, and opinions based on facts, and went on to say that disputes as to facts arose less frequently, whereas disputes as to inferences drawn from existing facts were fairly frequent. He also said that there was ample room for legitimate or genuine difference of opinion regarding inferences drawn from certain facts. With regard to cases of alleged cruelty, he (Prof. Macqueen) did not agree with the author at all about the less frequency of disputes as to facts. His experience had taught him that there were as many disputes as to facts as there were about inferences. In many cases in which he had appeared there had been an allegation of the existence of ringbone, which he assumed to be a fact, or at least which came within the category of facts mentioned by the essayist; and whilst one side alleged the existence of ringbone the other side denied it. That was a dispute as to fact. The same thing arose in connection with sidebone and other defects of the limbs. As to inferences or opinions based upon facts, he quite agreed with Prof. Wooldridge that there was every reason to accept what could be regarded as a conscientious opinion; but it was useless to expect finality with regard to agreement on inferential matters. There was more likelihood of agreement being attained on matters of fact.

Further on in the paper reference was made to lameness, and to a definition which was identified with his (Prof. Macqueen's) name. It had also been referred to again that evening, and he was rather surprised that Prof. Reynolds' memory was so short as not to be able to remember where he had heard the definition, considering that he (Prof. Macqueen) had given that definition every session for the last fifteen years. The definition was not his own but one which had first been propounded by the late William Percival in 1849. It appeared in one of that gentleman's volumes of Hippopathology, a work which was far too much neglected by present day veterinary surgeons, and especially those concerned with lameness. The definition as given in the printed report of Prof. Wooldridge's paper was not quite correct; there was one word missing. The correct definition was, "Lameness is the manifestation in the act of progression, by one or more of the limbs, of pain or weakness, inability or impediment."

With reference to that part of the paper which referred to lameness, or so-called mechanical lameness without pain, he should like to say that he did not regard it as good reasoning to compare a lame horse with a lame man. A lame man as regards physical exertion was a free agent. The horse was man's slave, and therefore, although a lame man might so conduct his locomotion as to limit pain to an extremely small degree, the lame horse was driven; he must go slow or fast according to the demand of his driver. With regard to mechanical lameness, there could be such a thing, but the difficulty to him was how to estimate when a lameness was purely mechanical. He had seen cases which had been described as cases of mechanical lameness unassociated with pain, but he desired to know how any observer could so interpret action that he could assume or be confident that the animal was entirely free from pain. If any veterinary surgeon could prove to him that a horse which was lame from ringbone or ankylosis was free from pain then he would fall in with the view expressed, but he was not able to satisfy himself that a horse with an ankylosed joint, say the pastern joint, could be so described.

Prof. Wooldridge had spoken of contracted tendons, and said that a horse with contracted tendons might start out in the morning quite free from pain and would continue for a time doing reasonable work; in fact he went so far as to say that an owner possessing a horse with contracted tendons and going on its toes would be perfectly justified in working the horse. He (Prof. Macqueen) entirely disagreed with that statement. He defied any member of the profession to produce a case of chronically strained tendons which was entirely free from pain; he would go further and say that he would pay half the price of the horse, if they proved to him that a thickened tendon was not the seat of a chronic inflammatory process. He admitted there were other lamenesses which might quite truthfully be said to be entirely free from pain. He did not regard stringhalt as a lameness in the ordinary sense, and he very much doubted if there was any pain in connection with it, and there were other nervous affections which came within the same class.

Prof. Wooldridge had said that a horse affected with, say, thickened tendons, turned out in the morning free from pain, might owing to some slight accident, such as slipping in the street, become very lame. Prof. Wooldridge said that that was a case which when it came before the Court the veterinary surgeon for the prosecution usually maintained that the horse when sent out could not have been fit for work because of lameness. Prof. Wooldridge was inclined to deny that that was so, and said that it was quite reasonable to suppose that the horse was quite fit for work in the morning although it had a thickened tendon, but that in the afternoon, when stopped by the police, and owing to a slight accident the horse was then suffering a certain degree of pain. The question he would put to Prof. Wooldridge was, how did he manage to distinguish between that slight degree of pain which existed in the morning, which was so infinitesimal as to permit of that horse working, and the degree of pain which was apparent in the afternoon when the horse, as Prof. Wooldridge admitted, was reasonably stopped? How did he gauge that pain?

Apart altogether from differences of opinion as to inferences of what might be going on in a given case, there was a broader view which the veterinary profession in this country had never attempted to sustain; and it was partly owing to the absence of that view that the veterinary profession, especially in London, was so often held in reprobation in cases of cruelty to animals. He had never been able to understand why veterinary surgeons should encourage the working of a lame horse. The veterinary surgeon's motive in life should be to stop lameness and to remove lame horses from the streets. Yet he went out of his way for the sake of paltry remuneration to encourage the working of a lame horse. If the veterinary profession did its duty there would be fewer lame horses. The proper attitude for the profession to adopt was to condemn the working of lame horses at every opportunity. Then their clients would come to them when a horse was lame, instead of trying to escape prosecution and its penalties. The fact appeared to be that there were a number of members of the profession who apparently existed upon fees derivable from prosecutions for lameness and other cruelty cases. Even although veterinary surgeons might know from their training and education that a given horse which was lame was not suffering much, if any pain, they should endeavour to satisfy the public that working lame horses was not a proper thing to do.

According to the essayist, overstocking might cause discomfort and pain if persisted in or allowed to continue for a longer period than eighteen hours. He (Prof. Macqueen) admitted that over-stocking did cause discomfort even when it existed a few hours, and it caused more discomfort the longer it was allowed to last; but whether it ever caused pain or not, or pain to a sufficient degree to render the owner of the animal guilty of cruelty, was a very doubtful question. He should not like to go into the witness box and say that an over-stocked cow was being treated in a cruel manner, for the reason that there was no scientific basis of knowledge to support that view. Mastitis could not be produced by over-stocking; that had been tried over and over again. If the udder were allowed to remain unemptied for more than a few hours, reaction set in, the sphincters became relaxed and milk poured out of the teats. The milk was not imprisoned permanently in the udder; some of the milk would find its way out through the teats sooner or later in all cases. He could say something about over-stocking; it was no new subject to him. Over thirty years ago it was the custom at local shows of milch cows not only to over-stock the udders, but to place the udder in a frame twelve to twenty-four hours before the show in order to make it assume what was considered to be a desirable shape. Boards were fitted to the udder, and in order to prevent the milk from escaping from the teat when over-stocking reached a certain stage, the tube of each teat was stopped by means of a short section of a leather lace pushed into the duct. In that way the cow would stand until the desired change took place in the condition of the udder. Another reason why there was so much over-stocking in those days was that local railways were far less convenient than at the present time and milch cows in travelling from one place to another were not milked, especially if they were going to market. They travelled by road and were not milked at all until they reached

the market, or until, in fact, they were sold. There was really no sound basis so far as he could discover for objecting to over-stocking. He was prepared to admit that it causes discomfort, and sometimes pain, but he knew of no means of estimating its effects on the cow.

On the motion of Mr. Davis, seconded by Mr. Perryman, the discussion was adjourned until the next meeting.

A vote of thanks to Prof. Reynolds and Prof. Wooldridge for their specimens was carried unanimously.

HUGH A. MACCORMACK, Hon. Sec.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

[NATIONAL V.M.A.—SOUTHERN BRANCH].

A general meeting was held at 10 Red Lion Square, on the afternoon of Friday, Nov. 27th. Owing to the unsettled position of the country, and the fact that a great many members of the Association are serving with the colours, the attendance was small, viz., Mr. J. C. Coleman, Swindon, President; (O/C Wessex Section A.V.C., T.F.); Messrs. J. Willett, Vice-President, London: S. H. Slocock. Hounslow; Lieut. T. Sealy Green, Tring; G. Upton, Epping; and G. P. Male, Reading, Hon. Sec. and Treasurer. Apologies for absence were read from Messrs. H. G. Lepper, J. S. Hurndall, and G. E. King.

The HON. SEC, on the minutes, reminded those present that a meeting was fixed for August 7th, in London, but war was declared on August 4th, and the meeting had to be abandoned; and a discussion on Mr. Thorpe's resolution as to the formation of a Veterinary Section was postponed to the Reading meeting.

DECEASED MEMBERS.

The HON. SEC. reported with regard to the late Mr. E. J. Mellet, of Henley-on-Thames, that he represented the Association at the funeral, and also sent a wreath in their name, and Mr. Percy J. Simpson also attended. He read a letter from the widow and the Misses Mellett expressing their thanks for sympathy and kind enquiries, and for the beautiful flowers.

He also reported the lamented death of two other old members—Mr. A. L. Butters, of London and Mr. F. W. Hanks, of Wantage.

The PRESIDENT said he was sure it was the wish of all to pass a resolution of regret at these three deaths, and that the Secretary be asked to write in the name of the Association expressing sympathy with the families; and he moved a resolution to that effect.

Mr. SLOCOCK seconded the motion, which was passed *sub silentio*, all standing.

MEMBERSHIP.

The HON. SEC. read a letter from Mr. John Hatch, of Beaconsfield, resigning membership, on the ground that he had sold his practice; also a letter from Mr. Harry P. Standley, Norwich, resigning, owing to his inability to attend the meetings. In reference to the latter gentleman, Mr. Male said that some time ago he sent in his resignation, but reconsidered it on being requested to do so.

Mr. WILLETT proposed that the resignations be accepted with regret.

Mr. SLOCOCK, in seconding, expressed the hope that if opportunities occurred both Mr. Hatch and Mr. Standley would come to the meetings of this Association as visitors on future occasions. (Hear, hear).

Mr. E. SELDON, M.R.C.V.S., of The Chippings, Tetbury, Glos., was unanimously elected a member of the Association.

ELECTION OF OFFICERS.

On the proposition of Mr. Willett, seconded by Mr. Slocock, the officers of the Association were re-elected *en bloc* for the ensuing year, viz., President, Mr. Coleman, Swindon; Vice-Presidents, Messrs. J. Willett, London; W. A. Hancock, Uxbridge; W. T. D. Broad, Marlboro'; and D. Wyllie, Staines; Hon. Auditor, Mr. Percy J. Simpson, Maidenhead; and Hon. Secretary and treasurer, Mr. G. P. Male, Reading.

Mr. WILLETT kindly undertook to act as Auditor, if necessary, during the absence of Mr. Simpson on military duty.

The PRESIDENT said he took it as a great honour to have been elected last year, and he hoped he had been able during the year to do a little good, and to lend his voice to assist in doing good to the profession at the Congress this year, which, however, proved a terrible disappointment. He was greatly honoured at having the opportunity of renewing his term of office, and he assurred them that he would try in the ensuing year to do all in his power to promote the good of the profession. (Applause).

INSURANCE COMPANIES AND VETERINARY SURGEONS FEES.

The HON. SEC. read letters dated May 18th, 1914, from Mr. Theo. C. Toope, Hon. Sec. South-Eastern Veterinary Medical Association, sending copies of scale of fees for services rendered to insurance companies by veterinary surgeons; and expressing the hope that all members would fall into line. [These documents have already appeared in the professional papers].

Mr. WILLETT proposed, and Mr. Upton seconded, that Mr. Toope's communications be acknowledged, and that gentleman informed that the matter will be brought before the Royal Counties' Association as soon as they got a representative meeting.

The PRESIDENT, in order to show how much the ordinary country practioner thought on the matter, informed the meeting that after the meeting of the Association at Faringdon, he drew up an explanatory note and sent it to one man, asking him to forward it to the next in rotation on a list of about 20, and so on, asking them to sign as proving unity in demanding more advanced fees. Although each of those 20 men sent it on as requested, it came back with only three signatures!

Mr. WILLETT's resolution was carried unanimously.

THE BLACKPOOL CONGRESS.

The PRESIDENT said he believed a report was expected from him as their delegate to the Congress at Blackpool. He regretted that immediately afterwards he had to go on his annual training, and, not having the notes with him, he had been unable to write a report; but he would endeavour to do so for a future meeting.

He would like to tell them that their secretary read a paper there which was received with acclamation, and which was followed by a splendid discussion. It was absolutely the best veterinary section he had ever attended at a Sanitary Congress. Mr. Noël Pillers read a very instructive and excellent paper, but somewhat deep. Mr. Brittlebank made a capital chairman of the section; and they had quite a number of outsiders—medical officers, councillors, and other delegates—attending their conference, which had never been the case before to the same extent.

The HON. SECRETARY said the Congress was most enjoyable, especially the "after meetings." (Laughter). The profession ought to be fully represented on those occasions, or they would be pushed out of the position they ought to have. The medical officers showed that if there was anything going they were "out for it." (Hear, hear.)

The PRESIDENT concurred. Those remarks should be an incentive to members who had not attended these congresses to swell the numbers and champion their cause. (Hear, hear). That alteration of day on which their section met had been a great help to them. (Hear, hear).

ARRANGEMENTS FOR THE FUTURE.

The next business on the agenda was to discuss arrangements for the ensuing year, and fix place of next meeting; and upon this considerable discussion arose, in consequence of the general fear that owing to the war there would be a very small number of members able to attend.

It was ultimately resolved, on the motion of Mr. Slocock, seconded by Mr. Willett, that the January and any future meeting of the Association be held at Reading until further notice, the question of holding the usual dinner after the January (annual) meeting being left in the hands of the President and Secretary.

Thanks to Mr. Coleman for presiding closed the meeting.

DEPARTMENTAL COMMITTEE ON FOOT-AND-MOUTH DISEASE.

ABSTRACT OF REPORT.

(*Concluded from p. 335*).

A still more remarkable fact was that the signs of general illness which are so constant during the early stage of an attack of foot-and-mouth disease in European animals were seldom observed in the Indian plains cattle. With rare exceptions these animals continued to feed while vesicles were forming in their mouths, and some were never recognisably lame although they had foot lesions.

Since neither the outward appearance of an experimental animal nor its temperature could be relied upon to show whether it had contracted the disease or not, it was found to be necessary to inspect the mouth once or twice daily and at the same time to cast the animal in order to make a thorough examination of its feet.

The small number of cases in which infected animals developed both mouth and foot lesions is another indication of the greater resistance offered by plains cattle and buffaloes. The total number of these which became infected in the course of the experiments was 37, and of these 32 had mouth lesions only, and 5 had both foot and mouth lesions. The total number of animals employed in the experiments was 228, viz., 165 cattle, 23 buffaloes, 9 sheep, 11 goats, 20 pigs.

The method of infection employed in the different animals and the results were as follows :—

	Contact		Intravenous Inoculation		Scarification		Subcutaneous Inoculation		Feeding	
	Pos	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Cattle	6	17	14	100	8	12	—	2	—	6
Buffaloes	1	—	4	9	—	4	—	6	—	1
Sheep	—	3	—	4	—	2	—	—	—	—
Goats	—	5	—	6	—	—	—	—	—	—
Pigs	—	—	—	—	3	5	1	11	—	—

In 49 experiments embracing 147 animals the results were entirely negative.

In the remaining 18 experiments 81 animals were used, and of these 37 became infected (including 2 doubtful). Special interest attaches to this group, for since one or more positive results were obtained in each of the experiments the negative results must be ascribed to marked insusceptibility of the animals in question, whereas in those experiments in which every animal failed to become infected this result may have been due to the fact that the virus had already perished in the material employed for infection. The results in this group were as follows :—

Intravenous inoculation infected 12 cattle and 3 buffaloes, and failed to infect 10 cattle and 1 buffalo.

Inoculation by scarification infected 8 cattle and 1 pig (2 doubtful) and failed to infect 4 cattle and 1 buffalo.

Subcutaneous inoculation infected 1 pig and failed to infect another.

Contact with diseased animals led to the infection of 6 cattle and 1 buffalo, and failed to infect 12 cattle, 3 sheep, and 5 goats.

Although in considering the evidence which the experiments afford regarding the insusceptibility of Indian animals to foot-and-mouth disease it has been thought advisable to separate the experiments which had entirely negative results from those in which at least some of the animals contracted the disease, it may be pointed out that the first group includes experiments in which it is probable, nearly to the point of certainty, that living virus was present in the material used although no animal became infected. As examples, Experiments 18, 22, 22A, and 22B may be cited. In the first of these, unfiltered lymph from a foot vesicle failed to infect any one of three cattle inoculated intravenously with it, but lymph from the same vesicle when filtered (*see* Experiment 18A) infected two cattle out of four. In Experiments 22, 22A, and 22B the material used for intravenous inoculation with negative results was blood drawn off from the jugular vein of plains bull 57 on the day before vesicles appeared in the mouth, the day on which these vesicles appeared, and the day after they appeared : and it is almost certain that on at least one of these days the blood must have contained the virus. Again, in Experiment 21A it is certain that the fresh lymph used for the inoculation of two young pigs must have contained the virus, although neither of the animals developed any symptoms of foot-and-mouth disease.

PERIOD OF INCUBATION.

[A table given shows the period of incubation in those cases in which it was determined, the first appearance of definite lesions in the mouth or feet being taken to fix the end of the period.]

In the great majority of cases the period of incubation after intravenous inoculation was two days, but in one animal (plains bull 36), the first lesions developed on the tenth day after inoculation. It might be suggested that this was a case of infection by contact from plains bull 29, which stood in the same chuppa and had developed the disease five days previously, but that would involve the unlikely assumption that an animal may resist intravenous inoculation of living virus and within a few days afterwards become infected by contact.

In cases of infection produced by scarification the period of incubation varied from 2 to 8 days, and after contact from 3 to 13 days. It must be noted, however, that in the latter experiments the contact was continuous, and that the interval which elapsed between actual infection and the appearance of lesions may have been shorter than the figures would indicate. In this connection attention may again be called to the facts mentioned in the Record of Experiments, that out of 25 hills bulls which left Muktesar on the 10th November, 23 had distinct lesions of foot-and-mouth disease when they arrived at Bareilly, four days later. The animals were supposed to be healthy at the time when they left Muktesar, but cases of foot-and-mouth disease had recently occurred there. It is very probable that some of them were actually diseased when they started for the journey to Bareilly, but nevertheless the rapidity with which the disease spread among them is remarkable.

The experiments furnished evidence regarding the rapidity with which the mouth lesions may develop and pass beyond the vesicular stage. As the liquid contents, or so-called lymph, formed in the vesicles appears to be the material which contains the virus or cause of the disease in greatest degree of concentration, it was desirable to obtain for experiment as large a quantity of this as possible, but efforts in this direction encountered great difficulty owing to the short period within which the vesicles might form and burst. Thus, it was found that in the morning, ulcers might be present in the mouth of an animal which on the previous evening showed no abnormality of the mucous membrane. In 25 cases the period within which ulcers developed in the mouth did not exceed 24 hours, but in 12 cases fresh vesicles appeared on two or more successive days.

In the entire series of infected animals very few lesions of a doubtful character were met with—that is to say, the lesions were obviously those of foot-and-mouth disease or obviously of another nature, accepting as the criterion the superficial and vesicular nature of the alteration in the mucous membrane. The vesicular or blister-like character of the lesions in foot-and-mouth disease is due to the fact that the inflammatory liquid escaping from the vessels of the mucous membrane accumulates between the layers of the epithelium in quantity, and raises the resistant horny layers of the latter as a more or less prominent elevation. Under the increasing tension of the accumulating liquid, or in consequence of the movements of the jaws, tongue, or lips, the surface epithelium soon gives way, with the result that the vesicle collapses. Very soon afterwards the loose shred of epithelium becomes completely detached, leaving on the membrane a shallow defect or ulcer. The tissue shed in the formation of the ulcer comprises epithelium only, and never includes the deeper layer of the mucous membrane or the papillæ where such are present. Moreover, in nearly every case the deeper layers of epithelial cells are not shed, but retain their position and form the floor of the resulting ulcer—a fact which explains the rapidity with which the lesions usually heal.

Although the rapidity with which vesicles may form and burst makes it difficult to be certain about the point, cases occurred in which it seemed that ulcers had been formed by shedding of epithelium without any preceding vesiculation.

As in most cases the experimentally infected animals were killed soon after the lesions developed, little opportunity to follow these during the process of healing was afforded, but it was well known that cicatrisation usually takes place rapidly in the mouth lesions. In one case, however (Buffalo calf 21), an ulcer was found to be still uncicatrised 26 days after it was first noted in the mouth.

Among lesions which presented slight difficulty in diagnosis those noted in plains bull 31 may be mentioned. The appearance of certain spots on the mucous membrane of the mouth in that animal suggested that vesicles were about to form, but neither vesiculation nor shedding of epithelium occurred.

In the case of Buffalo calf 13 a large number of small lesions formed on the hard palate, but these were easily distinguished from foot-and-mouth disease lesions by the absence of vesiculation or distinct shedding of epithelium.

In concluding this report we desire again to refer to the irregularity of the results which must now be expected to obtain when the native cattle of India are used for experimental purposes. The extraordinary irregularity in the results of exposure to infection by inoculation or otherwise renders it impossible to put that definate interpretation upon them which is necessary to enable conclusions to be arrived at. The difficulties arising in this way might be counteracted by experimenting on a great number of animals with different strains of virus. Such an investigation, however, would probably have to extend over a period of years. It would be very costly, and the results would probably remain difficult of definite interpretation.

We think that, in the light of the experience gained, it would be inadvisable to consider the question of further investigation in India, but, having regard to the importance of the subject, we venture to make suggestions in relation to a future investigation elsewhere. Foot-and-mouth disease, so far as Europe is concerned, is of international importance. The success of measures to exclude, control, or eradicate the disease in any particular country are, unfortunately, not wholly dependent on that country's own efforts, though Great Britain, from its insular position and the amount of control which can be exercised over importation of animals, is probably more favourably placed in this respect than any other European country. It is admitted, however, that every case of the disease arises directly or indirectly from another, and the experiences of this country show that in spite of its advantages of position the virus of foot-and-mouth disease may enter in some as yet unknown ways.

We suggest that a joint international investigation in Europe would be the form most likely to lead to practical results, but we do not think that it would be advisable to carry out experimentation on a mainland.

We know, moreover, that on the mainlands of France and Germany stations for this purpose were erected at great expense, and had to be closed on account of the difficulty of confining infection to these establishments. The most desirable arrangement would be a station on an island, sufficiently near to a mainland upon which natural outbreaks of the disease are continually occurring, so as to enable a practically unlimited supply of active virus to be obtained. It would also be desirable that the island should be within reasonable distance of another mainland upon which the disease has not established itself, so that a supply of animals beyond suspicion of having recently had the disease or been exposed to infection could be obtained. We do not suggest that such a station should be established off the coast of Great Britain. That seems too great a risk to be taken by a country which, even in the present state of affairs in Europe, has managed to deal successfully with the occasional invasions from neighbouring countries, and an additional objection arises from the fact that no constant supply of virus can be expected to be obtainable from natural outbreaks in Great Britain, unless the disease should firmly establish itself. We understand, however, that Germany and France have established stations on islands, and we venture to suggest the possibility of collaboration for the investigation of foot-and-mouth disease under European conditions.

The committee desire to place on record their appreciation of the manner in which Mr. W. G. Wragg has discharged his duties as Secretary to the Committee. They are further indebted to him and also to Major J. D. E. Holmes and Mr. D. A. E. Cabot for valuable assistance rendered in connection with the investigation. The committee also desire to make special mention of the very great help which was given by Mr. J. D'Monte, not only in connection with the purchase of suitable animals but also in the experimental work in general.

Finally, the thanks of the committee are due to the officers of the Civil Veterinary Department in India, and especially to Mr. E. W. Oliver, Mr. C. W. Wilson, and Mr. D. Meadows, for the trouble which they took in collecting and forwarding to the Laboratory at Bareilly, lymph and other material from cases of foot-and-mouth disease in the field."

The Report is signed by: Stewart Stockman, Chairman, J. M'Fadyean, A. E. Mettam, and W. G. Wragg, Secretary, and is dated 29th September, 1914.

Royal College of Veterinary Surgeons.

EXAMINATIONS IN LONDON.

At a meeting of the Board of Examiners held in London on December 11th for the Written, and on December 21st and 22nd for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. C. O. A. Anderton	Mr. R. H. C. Lucas
H. Chown	B. J. W. Nicholas
J. Daly	G. Simons
J. A. Edwards	P. S. Sparling *
H. E. Jackson	J. H. Stewart *
H. A. King	H. A. Thorne
J. M. Knighton	J. L. Williams
A. G. E. Lalor	

The following passed their Third Examination: (Oral and Practical on December 16th and 18th).

Mr. G. H. Bennet *	Mr. A. Temple
F. Canilla	G. S. Walker
R. W. D. C. Easom *	P. F. Woodland

The following passed their Second Examination;

Mr. P. W. Bloye	Mr. R. B. Nelder
E. C. Bowes	C. J. Peach
H. J. Edwards *	S. R. Rippon

The following passed their First Examination:

Mr. S. V. Golledge *	Mr. C. G. Hopson

Marked thus * passed with Second Class Honours.

EXAMINATIONS IN LIVERPOOL.

At a meeting of the Board of Examiners held in Liverpool on December 11th for the Written, and on December 16th, 17th and 19th for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. W. Andrew	Mr. G. Lloyd *
W. Atkinson	

The following passed their Third Examination:

Mr. S. T. Jackson *	Mr. B. Whittam
P. McNamee	

The following passed his Second Examination;

Mr. T. Hare

The following passed his First Examination:

Mr. A. Williams

Marked * passed with Second Class Honours.

EXAMINATIONS IN GLASGOW.

At a meeting of the Board of Examiners held in Glasgow on December 11th for the Written, and on December 16th and 17th for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. W. Barr	Mr. W. H. G. Wardrop
D. G. MacLeod	D. Pollock
E. Angler	

The following passed their Third Examination:

Mr. N. M. Macewan	H. J. Hughes

The following passed their Second Examination:

Mr. F. Mackenzie	Mr. H. H. Leach
D. E. Orr	

The following passed their First Examination;

Mr. C. T. Murphy	Mr. C. Watson
J. McCauley	

EXAMINATIONS IN EDINBURGH.

At a meeting of the Board of Examiners held in Edinburgh on December 11th for the Written, and on December 16th and 18th for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. A. J. R. Bott	Mr. L. Littler
W. J. Bambridge *	T. M. Mitchell
R. J. Forrest	J. E. Syme

The following passed their Third Examination:

Mr. R. E. Bond	Mr. J. B. Mackie
D. M. Ireland *	T. M. Martin.
P. M. Laughlin	

The following passed their Second Examination:

Mr. N. Bissett	Mr. A. N. Metcalfe
J. Judge	C. V. Watkins

The following passed their First Examination:

Mr. A. W. Baird	Mr. C. S. Forsyth

Marked thus * passed with Second Class Honours.

EXAMINATIONS IN DUBLIN.

At a meeting of the Board of Examiners held in Dublin on December 11th for the Written, and on December 14th and 15th for the Oral and Practical Examinations, the following gentlemen passed their Final Examination :—

Mr. M. J. Brett	Mr. G. J. Delaney
F. J. Daly	T. F. Donworth
H. Dolan	R. Hans
C. P. Fisher	P. J. Hayes
P. D. Huston	H. Jewell
J. O'Carroll	M. J. Ryan
C. Roche	

The following passed their Third Examinations;

Mr. P. J. Gaffney	Mr. F. J. Kenny
M. A. Murphy	M. McCartin
T. F. O'Connor *	T. O'Connor *
P. J. Dunne	C. O'Driscoll *
W. A. Flanagan	

The following passed their Second Examination:

Mr. W. Forde	Mr. J. J. Barry
T. C. Hall	J. J. Clune
D. Mahony	H. C. J. Kelly
W. L. Sinton	T. A. O'Brien
D. P. White	

The following passed their First Examination;

Mr. W. E. Barry	Mr. A. J. Kelly
M. Donohoe	T. F. Moran
W. F. Fennelly	V. E. Stack
J. Heffernan	J. J. Masterson
W. Henigan	

Marked thus * passed with Second Class Honours.

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Dec. 19		18	20	3	18	1	4			15	77	361
Corresponding week in	1913 ...	15	15	1	50	5	9	47	79	26	59	1127
	1912 ...	7	10			1	1	80	133	16	45	704
	1911 ...	16	17			1	5			16	46	600
Total for 51 weeks, 1914		710	775	27	143	96	285	1547	2682	218	4298	39078
Corresponding period in	1913 ...	575	629	2	73	155	398	2334	4558	223	2520	31687
	1912 ...	729	826	83	645	171	310	2828	5965	294	2888	39220
	1911 ...	886	1095	19	487	206	499			408	2427	29814

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: London 1, Middlesex 2, Northumberland 1. Board of Agriculture and Fisheries, Dec. 22, 1914

‡ The Parasitic Mange Order of 1911 has been suspended as from 6th August.

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

OBITUARY

VERNEY.—On the 14th Dec., at Salterly Grange, Leckhampton, after a short acute illness, Ethel, eldest daughter of Richard John and Helen Verney, 23 Beaumont Street, Oxford.

After-Pain with Local Anæsthesia.

An analysis of 588 operations under local anæsthesia has shown that the after-pain is experienced usually only when the operation was in inflamed tissues, or the parts were stretched or particularly rich in nerves. Of the 74 operations for ingrowing nail, all but eight were followed by severe pain. Women are more subject to the after-pain than men. The author's practice now is to give a small subcutaneous injection of morphine before commencing the anæsthetisation for operations in acutely inflamed tissues, or when there is otherwise reason to anticipate much after-pain.—F. Honigmann (*Zentrall. f. Chirurg.*, Leipsic, February 7, 1914 through *Pharm. Journal.*)

How they do it in the States.

A few weeks ago Charles Babcock, who is in his senior year at the Chicago Veterinary College, happened to think that soon he would be out of school bucking up against the proposition of making a living for himself. He had heard of Dr. Elinor McGrath, whose cat and dog hospital at 3247 Indiana Avenue is said to be quite a prosperous institution. So he thought he would go out and see her and ask her to give him a few pointers about getting on in the world.

Yesterday Dr. McGrath and Mr. Babcock were married. A few hours after the ceremony Mr. Babcock was waylaid while in the Veterinary College, which is at 2537 South State Street. He was tied into a cart behind a nervous hound. Three hundred students with enough animals to stock a two-ring circus paraded up to the bride's cat and dog hospital. There are fifty-two patients in the hospital. They raised their voices and joined in the charivari.

The bride appeared, smiled at the assemblage, and at her husband, and expressed herself as delighted with the entire procedure.—*Chicago Tribune* (*Amer. Vet. Rev.*)

Personal.

Owing to continued ill-health Dr. E. F. Bashford has been obliged to resign the post of General Superintendent of the Imperial Cancer Research Fund. He has directed the work of the fund for the last eight years. Dr. Bashford, who was at the Universities of Edinburgh, Berlin, and Frankfurt, has made a considerable reputation both here and on the Continent for his investigations into cancer and also in toxicological research.

ARMY VETERINARY SERVICE

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Dec. 18.

REGULAR FORCES. ARMY VETERINARY CORPS.

To be temporary Lieuts.:—
J. B. Welham. Dated Dec. 1.
L. Mitchell, F. W. Medlock. Dated Dec. 2.
C. Stephens to be temporary Qmr., with hon. rank of Lieut. Dated Dec. 19.

Dec. 19.

Special Reserve of Officers. ARMY VETERINARY CORPS.

Supplementary to Regular Units or Corps.

W. E. Footner to be Lieut. (on probation). Dated Dec. 2.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

Col. W. B. Walters, C.B., retired pay, is appointed Assist. Director of Vet. Services to a T.F. Division, and to be Col. Dated Aug. 29, instead of as notified in *Gazette* of Dec. 1.

Dec. 21.

REGULAR FORCES. ARMY VETERINARY CORPS.

To be temporary Lieuts:—
R. Clunas, J. O. Cobbledick. Dated Dec. 7.
P. J. Austin. Dated Dec. 11.
H. E. Whitemore. Dated Dec. 12.

Dec. 22.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

G. O. Ogden to be Lieut. Dated Nov. 27.
G. C. Robertson to be Lieut. Dated Dec. 23.
E. R. H. Woodcock to be Lieut. Dated Nov. 28.

Hunting Memorial Fund.

The Editors of the Veterinary Record.

Sirs.

Will you kindly announce in your next issue that owing to the war and the difficulty of getting in touch with some of the probable supporters of the Fund the subscription list will not be closed *before* June 30th, 1915.

In the meantime it is hoped that all those members of the profession as well as the societies who have not yet subscribed will do so as soon as they conveniently can.

Suggestions from donors regarding the disposition of the Fund will be welcomed and duly considered by the General Committee, which will meet immediately after the subscription list has been closed, to decide the form of the proposed memorial.—I am, dear Sir, yours faithfully,

HENRY GRAY, Hon. Treas. & Sec.

23 Upper Phillimore Place, London, W.
Dec. 24th, 1914.

Fund for the A.V.C. with the Expeditionary Force.

Dear Sir,

I have pleasure in sending you my fifth list for publication in your paper. It is very encouraging to find that so many kind friends of the Army Veterinary Corps are sending me second, third and fourth parcels, and also that cheques continue to come in so generously. I would like to say that I have about half the sum collected still in hand and I therefore hope to continue supplying the various Veterinary Sections with what further warm garments and comforts they may require. The strengths and establishment of the Sections have been considerably increased, and I have been asked to provide warm clothing for drafts of the Corps leaving for the front. I have also had much pleasure in sending parcels to individual men who have returned to England invalided. I have been informed that many men of the Corps have expressed a desire that if possible something should be done at Christmas time for their wives and families; I have therefore ascertained the names and addresses of the wives of all Regular Army Veterinary Corps N.C.Os. and men, and I have despatched to them one hundred and thirty prettily iced and decorated cakes (3½ lbs. in each), which I feel sure will be greatly appreciated. I am also distributing children's clothing which has been sent me by kind donors.

Whilst again thanking all those who have so generously contributed. May I say that in the New Year I hope the A.V.C. Comfort Fund will continue to receive further support.—Yours truly,

ADELAIDE M. MOORE.

Cartington, Farnborough, Hants.
Dec. 22.

Amount acknowledged to Dec. 5th	£350	1	0
per Mrs. Mettam, separate lists to Dec. 12th	15	10	6
G. D. Lansley, Esq.	1	1	0
R. J. G. Voisin, Esq., Jersey	1	2	6
Mrs. Pauer	1	1	0
T. A. Dollar & Sons	3	3	0
Mrs. J. J. Aveston	1	1	0
Dr. Charnock Bradley	2	2	0
Mrs. Blenkinsop	10	10	0
Misses B. and F. Fearnside	1	0	0
R. J. Foreman, Esq.	2	2	0
Mrs. Yate		5	0
George E. King, Esq.	1	1	0
Major R. L. Cranford	2	0	0
Capt. Allen	2	0	0
C. W. Wilson, Esq.	5	0	0
Martin Robinson, Esq.	1	1	0
Miss M. Robinson	1	0	0
	£401	1	0

Collection for Mrs. Moore's Fund per Mrs. Mettam, R.V.C.I., Dublin (8th List).

Previously acknowledged	£112	1	0
Mrs. John Blakeway, Chaddesley Corbett	1	0	0
W. Ashe King, D.A.T.I., Dublin	1	0	0
Total of the Fund £403 1 0	£114	1	0

Lists of garments and gifts, with letters from the Front will appear next week.

Veterinary Societies - Addresses.

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. J. D. Fulton, 83 Buccleuch Street, Glasgow

ROYAL VETERINARY COLLEGE V.M.A.
Pres: Prof. E. Brayley Reynolds.
Hon. Sec: Mr. B. Gorton, M.R.C.V.S. *Assist.* Mr. P. R. Turner

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH
Pres: Mr. T. Douglas, M.R.C.V.S., Kilmarnock
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

NATIONAL ASSOCIATION OF VETERINARY INSPECTORS
Pres: Mr. J. Abson, F.R.C.V.S., Sheffield
Hon. Sec: Mr. Trevor Spencer, M.R.C.V.S., Kettering

MUNSTER VETERINARY INSPECTORS' ASSOCIATION
Pres: Mr. D. M. Barry, M.R.C.V.S., Mallow
Hon. Sec: Ma. T. I. Alexander, M.R.C.V.S., Kinsall

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Hon. Sec: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester
Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester

VICTORIA VETERINARY BENEVOLENT FUND.
Pres. Mr. S. H. Slocock, F.R.C.V.S., Montague Rd, Hounslow
Hon. Sec. & Treas: Mr. W. Shipley, F.R.C.V.S. South Town, Great Yarmouth

COLONIAL SOCIETIES (*continued next page*)

VETERINARY ASSOCIATION OF NEW SOUTH WALES
Pres: Mr. S. T. D. Symons. M.R.C.V.S., Chief Inspr. of Stock
V. Pres: Maj. A. P. Gribben, F.V.O., M.R.C.V.S.
Hon. Sec. & Treas: Mr. Max. Henry, M.R.C.V.S., B.V.SC. (SYD). 56 Bridge Street, Sydney

BRITISH COLUMBIA V.M.A.
Pres: Dr. Gibbons, M.R.C.V.S., Vancouver,
Hon. Pres: Dr. Hamilton, M.R.C.V.S., Victoria.
Sec., Treas., Registrar. Dr. T. Jagger, V.S., Vancouver.

ASSOCIATION MÉDÉCALE VÉTÉRINAIRE FRANÇAISE "LAVAL
Sec: Mr. J. P. A. Haude, Montreal

PROVINCE OF QUEBEC V.M.A.
Hon. Sec. Mr. Gustave Boyer, Rigaud, P.Q.

VETERINARY ASSOCIATION OF ALBERTA
Hon. Sec. Mr. C. H. H. Sweetapple, For Saskatchewan, Alta, Can.

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & Treas: Mr. L. A. Wilson, Toronto, Ontario

TRANSVAAL V.M.A.
Pres: Mr. C. E. Gray, F.V.S., Box 134, Pretoria.
Hon. Sec: Mr. P. Conacher, G.V.S., Box 877, Johannesburg

NATIONAL VETERINARY ASSOCIATION

President: Dr. O. Charnock Bradley, Prin. R.V. Coll., Edin.
Sec: Mr. J. W. Brittlebank, M.R.C.V.S.,
Town Hall, Manchester
Assist. Sec: Mr. W. L. Harrison, F.R.C.V.S.,
11 Anchor Terrace, Southwark Bridge, S.E.
Treas: Prof. G. H. Wooldridge, F.R.C.V.S.,
Ryl. Vet. Coll., Camden Town N.W.

Northern Branch:

Pres, W. A. Taylor, (F) Brick Street, Manchester
Hon. Sec. A. W. Noël Pillers, (F)
71 Smithdown Lane, Liverpool

LANCASHIRE V.M.A.

Pres: Mr. G. H. Locke, M.R.C.V.S.,
Grosvenor-street, Manchester
Hon. Sec. Mr. J. W. Brittlebank, M.R.C.V.S.,
Town Hall, Manchester
Hon. Treas: Mr. E. H. Stent, M.R.C.V.S., Preston-st, Hulme
Meetings, 1st Thursday in April, June, Sept., & Dec.

LIVERPOOL UNIVERSITY V.M.S.

Pres: Mr. J. P. Heyes, F.R.C.V.S., Wigan
Hon. Sec: Mr. A. Walker, M.R.C.V.S., Mill Lane, West Derby
Pathological Sec: Mr. D. C. Matheson, F.R.C.V.S.
Meetings, May, July, October, January.

MIDLAND COUNTIES V.M.A.

Pres: Mr. J. Malcolm, F.R.C.V.S., Birmingham
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S.,
Camden House, High-st., West Bromwich
Hon. Treas. Mr. J. J. Burchnall, M.R.C.V.S., Barrow-on-Soar
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov.

NORTH OF ENGLAND V.M.A.

Pres:
Hon. Sec: T. T. Jack, M.R.C.V.S., 3 Elmwood Ter, Sunderland
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH MIDLAND VETERINARY ASSOCIATION

Pres: Mr. M. Robinson, M.R.C.V.S., Barnsley
Hon. Sec: Mr. J. S. Lloyd, F.R.C.V.S., Sheffield

NORTH WALES V.M.A.

Pres: Mr. Hugh Williams, M.R.C.V.S., Ty Croes
Hon. Sec. Mr. L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon
Meetings, First Tuesday, March and September

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.

Pres: Mr. J. M. Walker, F.R.C.V.S., Hartlepool
Hon. Sec. & Treas: Mr. J. H. Taylor, F.R.C.V.S.
Grange Road, Darlington
Meetings, First Friday, Mar., June, Sept. and Dec.

YORKSHIRE VET. ASSOCIATION

Pres: W. Crawford, M.R.C.V.S., 155 Woodhouse Lane, Leeds
Hon. Sec; Mr. J. Clarkson, M.R.C.V.S., Garforth, nr. Leeds
Hon. Treas: Mr. A. McCarmick, M.R.C.V.S.,
Kirkstall-road, Leeds

Southern Branch:

Pres. Sir Stewart Stockman, 4 Whitehall Place, S.W.
Sec. T. C. Toope, 34 High Street, Dover

CENTRAL V.S.

Pres. Mr. F. W. Willett, M.R.C.V.S., High Street, Staines
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S.,
122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

EASTERN COUNTIES V.M.A.

Pres. Mr. W. L. Little, F.R.C.V.S., Great Yarmouth
Hon. Sec. & Treas: Mr. A. C. Holl, M.R.C.V.S.
New Buckenham
Meetings, Second Tuesday, Feb., July and Sept.

LINCOLNSHIRE AND DISTRICT V.M.S.

Pres. Mr. C. W. Townsend, F.R.C.V.S.,
Long Stanton, Cambridge
Hon. Sec: & Treas: Mr. Tom Hicks, M.R.C.V.S.,
Boston Road, Sleaford
Meetings, Second Thursday Feb., June, and October

ROYAL COUNTIES V.M.A.

Pres: Mr. J. C. Coleman, M.R.C.V.S., Swindon
Hon. Sec. & Treas: Mr. G. P. Male, M.R.C.V.S., Reading
Meetings. Last Friday, Jan., April, July and Nov.

SOUTHERN COUNTIES V.S.

Pres: Mr. G. H. Livesey, M.R.C.V.S., Hove, Sussex
Hon. Sec: Mr. A. H. Archer, M.R.C.V.S., Southsea, Portsmouth
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

SOUTH EASTERN V.A.

Pres. Mr. E. Lyne Dixson, M.R.C.V.S., Margate
Hon. Sec. & Treas. Mr. Theo. C. Toope, M.R.C.V.S.,
34 High Street, Dover
Meeting,

WESTERN COUNTIES V.M.A.

Pres: Mr. W. P. Stableforth, F.R.C.V.S., Colyton, Devon
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

Irish Branch:

Pres. Mr. W. Watson, Municipal Buildings, Dublin
Sec. Mr. P. D. Reavy, Leafield, Bundoran, Co. Donegal

CENTRAL V.A. OF IRELAND.

Pres: Mr. B. P. J. Mahony, M.R.C.V.S., Maryborough
Hon. Sec. Mr. E. C. Winter, F.R.C.V.S., Queen-st., Limerick
Treas: Mr. J. F. Healy, M.R.C.V.S., Midleton

CONNAUGHT V.M.A

Pres. Mr. D. Hamilton, M.R.C.V.S., Ballina
Hon. Sec. & Treas. Mr. A. J. Moffett, M.R.C.V.S., Galway

VET. MED. ASSN. OF IRELAND.

Pres: Mr. P. D. Reavy, M.R.C.V.S., Leafield, Burdoran
Hon. Sec: Prof. J. J. O'Connor, M.R.C.V.S., R.V. Coll., Dublin
Hon. Treas: Prof. J. F. Craig, M.A., M.R.C.V.S.,
R.V. Coll., Dublin

NORTH OF IRELAND V.M.A.

Pres: Mr. J. A. Jordan, M.R.C.V.S., Belfast
Hon. Sec; Mr. J. Ewing Johnston, M.R.C.V.S., Belfast
Hon. Treas;

Scottish Branch:

Pres. Dr. O. Charnock Bradley, } Ryl. (Dick) Vet.
Hon. Sec. Prof. A. Gefton, } Coll: Edinburgh

NORTH OF SCOTLAND V.M.S.

Pres: Mr. W. Marshall, M.R.C.V.S., Aberdeen
Hon. Sec. & Treas: Mr. G. Howie, M.R.C.V.S. Alford, Aberdeen
Meetings, Last Saturday in January and August

ROYAL SCOTTISH V.S.

Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

SCOTTISH METROPOLITAN V.M.S.

Pres: Mr. J. Riddoch, M.R.C.V.S., Edinburgh
Hon. Sec. & Treas: Mr. Jas. Henderson, M.R.C.V.S.,
Public Health Dept., City Chambers, Edinburgh

WEST OF SCOTLAND V.M.A.

Pres: Prof. John R. McCall, M.R.C.V.S., Vety. Coll. Glasgow
Hon. Sec: Mr. J. F. Macintyre, M.R.C.V.S.,
19 Bank Street, Hillhead, Glasgow
Hon. Treas: Mr. Geo. W. Weir, M.R.C.V.S.,
88 Crookston Street, Glasgow
Meetings, Second Wednesday, May, Oct. and January.

COLONIAL SOCIETIES: *(see preceding page)*

CAPE OF GOOD HOPE V.M.S.

Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. J. W. Crowhurst, F.R.C.V.S.
Longmarket Street, Cape Town

CENTRAL CANADA V.A.

Pres. Mr. Geo. Hilton
Hon. Sec: Mr. A. E. James, Ottawa

VET. ASSN. OF MANITOBA.

Pres: Dr. W. R. Taylor, Portage la Prairie
Hon. Sec. & Treas: Mr. Wm. Hilton, Winnipeg

NATAL VETERINARY MEDICAL ASSOCIATION.

Pres. Mr. F. J. Carless, M.R.C.V.S., Mooi River
Hon. Sec. & Treas. Mr. A. Goulé, Eshowe, Zululand